

m 7/2/989

SMOKING TOBACCO & HEALTH

A FACT BOOK

HE 20.7602:

READER
FIGHT

best copy available

This is an update of a fact book first published by the Public Health Service in 1969. Like its predecessors, it deals with the medical, social, and economic aspects of cigarette smoking. It identifies cigarette smoking as the chief preventable cause of death in the United States.

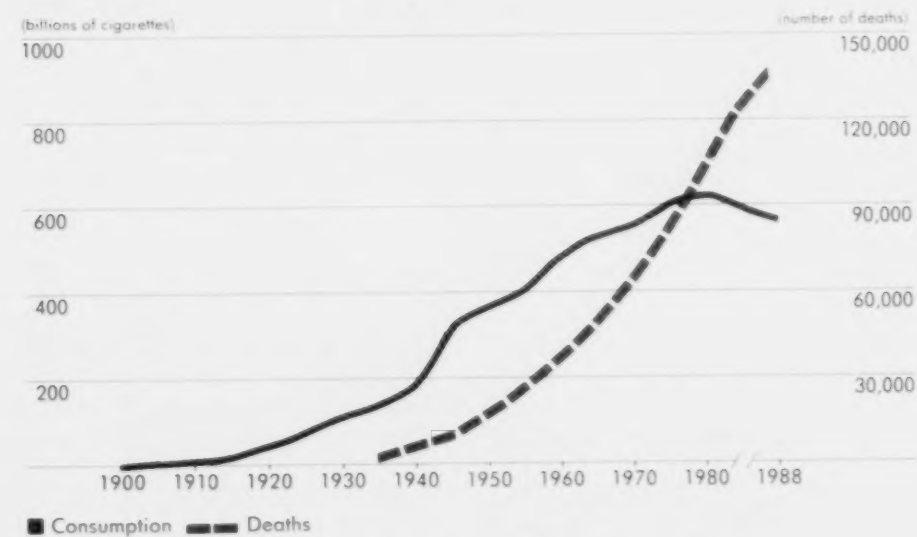
Sources for most medical information are the annual Reports of the Surgeon General on the Health Consequences of Smoking, which are issued by the Department of Health and Human Services each year. Information on the tobacco economy comes principally from the Economic Research and the Foreign Agricultural Services of the U.S. Department of Agriculture, with additional data from the U.S. Department of Commerce and the Federal Trade Commission.

SMOKING, TOBACCO, & HEALTH

Cigarette smoking can legitimately be termed the most devastating preventable cause of disease and premature death this country has ever experienced. Each year it causes the death of nearly 400,000 Americans—115,000 from coronary heart disease, 27,000 from stroke, 136,000 from cancer, 60,000 from chronic obstructive pulmonary disease and an estimated 50,000 deaths from other diseases and other causes.

The epidemic began 75 years ago. In 1915, most tobacco was used for pipes, cigars and chewing tobacco, and fewer than 20 billion cigarettes were sold; in 1987, 575 billion cigarettes were sold. As late as 1935, lung cancer was a rare disease; in 1987, 136,000 persons died from it.

Cigarette Consumption and Lung Cancer Deaths, 1900-1988



Economic Research Service, USDA; American Cancer Society

The cigarette epidemic reached its peak in 1963 and is now receding. The percentage of people who smoke has fallen, and per capita consumption is the lowest in 45 years. However, over 50 million adults still smoke, and each year one million teenagers take up smoking.

Per Capita Consumption of Cigarettes (18 years and older), 1925-1988

	Number of Cigarettes		Number of Cigarettes
1925-29	1,285	1970	3,985
1930-34	1,389	1971	4,037
1935-39	1,779	1972	4,043
1940-44	2,558	1973	4,148
1945-49	3,459	1974	4,141
1950	3,522	1975	4,123
1951	3,744	1976	4,092
1952	3,886	1977	4,051
1953	3,778	1978	3,967
1954	3,546	1979	3,861
1955	3,597	1980	3,849
1956	3,650	1981	3,836
1957	3,755	1982	3,739
1958	3,953	1983	3,488
1959	4,073	1984	3,446
1960	4,171	1985	3,370
1961	4,266	1986	3,274
1962	4,265	1987	3,196*
1963	4,345	1988	3,121**
1964	4,195		
1965	4,259		
1966	4,287		
1967	4,280		
1968	4,186		
1969	3,993		

* Subject to revision.

**Estimated.

Economic Research Service: USDA

Cigarettes gained their popularity over other forms of tobacco for several reasons. They are inexpensive (or were until recently), they are the only form of tobacco which large numbers of women have ever used, and they are profitable to manufacture, which has made it possible for the cigarette companies to spend large sums of money advertising and promoting them.

The overriding reason why people continue to smoke cigarettes is that although all tobacco is addictive, cigarettes are most addictive. Cigarette smoke is relatively mild and can be more easily inhaled than pipe or cigar smoke, which enables the smoker to absorb more nicotine, more quickly. An analogy is the more immediate and purportedly more gratifying response which cocaine users obtain when they smoke it as crack. In the early 1940s, a precipitous rise in lung cancer deaths began, and by the mid-1950s scientists were able to say with certainty that cigarette smoking was the overriding cause of these deaths. Later, they established that cigarette smoking causes other diseases, including other cancers, heart disease, and chronic obstructive pulmonary disease.

The turning point in America's epidemic of smoking came on January 11, 1964, when the Public Health Service issued its epochal *Smoking and Health: Report of the Advisory Committee to the Surgeon General*, which identified cigarette smoking as a cause of illness and premature death. This began a national and worldwide effort by Government and private agencies to alert the public to the hazards of tobacco use.

This effort is continuing. The World Health Organization and the health agencies of virtually every country in the world now have anti-smoking programs in progress. In the United States the effort at the Federal level is mandated by law. State and local health and education departments and medical and health agencies are carrying on aggressive programs, among them the American Cancer Society, the American Heart Association, the American Lung Association, and the American Medical Association.

Although cigarette smoking has declined, the cigarette companies have prospered. In 1985 they reported profits after taxes of \$3.4 billion, the largest amount in the history of the industry until that year. However, the tobacco farmer and the tobacco-growing economy have suffered.

Current and Former Smokers, 1965-1987

(sex, race, and age)	Current smoker				Former smoker			
	1965	1976	1983	1987	1965	1976	1983	1987
	Percentage of Persons							
All males								
20 years and over	52.1	41.6	35.4	31.5	20.3	29.6	31.1	31.4
20-24 years	59.2	45.9	36.9	31.1	9.0	12.2	9.1	7.8
25-34 years	60.7	48.5	38.8	34.8	14.7	18.3	19.8	17.4
35-44 years	58.2	47.6	41.0	36.6	20.6	27.3	27.5	28.1
45-64 years	51.9	41.3	35.9	33.5	24.1	37.1	40.1	40.1
65 years and over	28.5	23.0	22.0	17.2	28.1	44.4	48.1	53.4
White:								
20 years and over	51.3	41.0	34.7	30.7	21.2	30.7	32.0	32.6
Black:								
20 years and over	59.6	50.1	42.6	40.3	12.6	20.2	23.2	22.2
All females								
20 years and over	34.2	32.5	29.9	27.0	8.2	13.9	16.4	18.0
20-24 years	41.9	34.2	37.5	28.1	7.3	10.4	10.8	10.5
25-34 years	43.7	37.5	32.6	31.8	9.9	12.9	13.8	15.6
35-44 years	43.7	38.2	33.8	29.6	9.6	15.8	17.1	19.4
45-64 years	32.0	34.8	31.0	28.6	8.6	15.9	18.6	20.7
65 years and over	9.6	12.8	13.1	13.7	4.5	11.7	18.7	19.8
White:								
20 years and over	34.5	32.4	29.8	27.3	8.5	14.6	17.2	18.9
Black:								
20 years and over	32.7	34.7	32.5	27.9	5.9	10.2	10.7	13.2

Health, United States, 1988, Centers for Disease Control, National Center for Health Statistics

The above data are weighted.

WHO SMOKES CIGARETTES

In 1965, 50.2 percent of American men and 31.9 percent of women smoked cigarettes; by 1987 this had dropped to 31.7 and 26.8 percent. The decline has occurred in every age group and at every income level, but has been greatest among the better educated. Smoking among college graduates has dropped by half since 1966, while smoking among those with less than high school education has hardly changed. On the average, fewer white collar workers smoke than blue collar workers, and fewer whites than blacks. Blacks, however, smoke fewer cigarettes than whites.

Declines in Smoking by Education Level, 1966-1987 Total Smoking Population, 1965-1987 (Percentage smoking, by year and education level)

	Less than HS Grad	HS Grad	Some College	College Grad	Overall Population
1965	—	—	—	—	40.4%
1966	36.5%	41.1%	42.5%	33.7%	40.7
1970	34.8	38.3	36.7	28.1	37.0
1974	36.5	37.6	36.9	28.3	36.9
1976	35.8	37.8	36.4	27.4	36.1
1977	35.8	38.4	35.2	25.6	35.6
1978	35.3	36.5	32.7	23.8	34.0
1979	34.9	35.4	33.3	23.4	33.5
1980	35.5	35.7	31.2	24.6	33.3
1983	34.7	35.6	30.0	19.9	31.8
1985	34.1	33.8	27.8	18.4	30.4
1987*	35.7	33.1	26.1	16.3	29.1

*Preliminary

Reducing the Health Consequences of Smoking, 25 Years of Progress, 1989

**Prevalence of Cigarette Smoking by Socio-Demographic Characteristics
(17 years and older), 1986**

	Percentage	
	Male	Female
Marital status		
Never Married	25.5%	20.6%
Currently Married	29.5	24.1
Widowed	27.1	16.1
Separated or Divorced	41.8	38.6
Education		
11 or Fewer Years	38.0	27.8
12 Years	33.2	25.9
13-15 Years	25.4	22.9
16+ Years	18.0	13.5
Household Income		
10,000 or Less	35.5	25.9
10,001-20,000	31.8	25.6
20,001-30,000	34.9	28.1
30,001-40,000	30.0	25.1
40,000+	24.1	20.0
Region		
Midwest	32.3	21.7
Northeast	28.0	24.0
Southeast	30.4	26.1
West	26.7	22.7

Centers for Disease Control, Office on Smoking and Health

TEENAGERS AND SMOKING

Teenagers appear to be turning away from cigarettes. In the years between 1976 and 1981, the percentage of high school seniors who smoke every day declined from 29 percent to 20 percent; since then, a small decline has occurred. Young men are doing much better than young women, and there are now more girls who smoke than boys.

Children take up smoking in three stages. The first is experimental: 70 percent of children experiment with smoking during the course of their childhood, 40 percent while they are still in grade school. The second, and more dangerous stage, is occasional use on weekends, at parties, on dates. The final stage is when the young person becomes a confirmed, regular smoker. By the time the age of 20 is reached, the process is usually completed. About a third of the young men and young women at this age have become smokers and two-thirds have escaped.

Daily Cigarette Smoking by High School Seniors, 1975-1987



National Institute of Drug Abuse

Smoking causes harm even to the youngest smoker. It almost immediately brings about reduced lung function, smoker's cough, and other respiratory difficulties. Its most harmful consequence is the likelihood of lifelong addiction. The earlier a person starts smoking, the more difficult it is to be able to quit later in life.

Seventy-five percent of all teenage smokers come from homes where parents smoke.

FORMER SMOKERS

Most people who smoke would like to quit. At least two-thirds have tried at one time or another, and at least one-third try in any one year. Quitting, however, can be difficult. Out of every 100 smokers who try to quit, 60 percent go back to smoking before the first year is out.

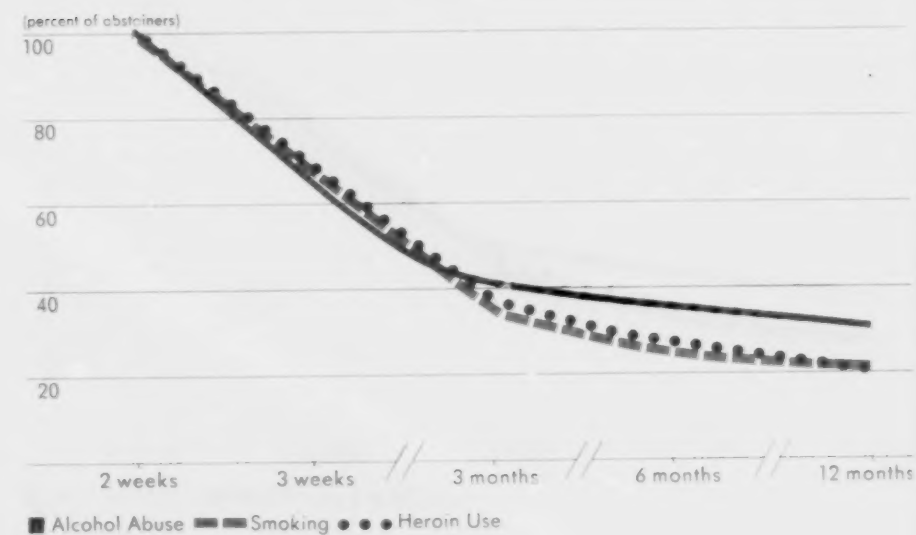
The rate of relapse for tobacco use appears to be very similar to that for alcohol and heroin. Surveys have shown that quitting smoking is as hard for smokers as giving up heroin is for heroin users, or giving up alcohol for alcohol abusers. In one study

conducted some years ago it was found that 40 percent of smokers, drinkers, and heroin users were still abstaining after two months, and that by the end of the first year 35 percent of the drinkers and 25 percent each of the smokers and heroin users were abstaining.

Although it may be difficult to give up smoking, it can be done; 40 million men and women in our population have done it and the number keeps increasing every year. What is required for success is strong motivation, the support of friends and family, and for some smokers, professional help, obtained individually or in formal smoking cessation programs. Nicotine chewing gum is being used in many of these programs to help the smoker.

For those who succeed, quitting pays. Ten years after quitting, the death rate of former smokers is approximately the same as for those who have never smoked at all.

Relapse Rate Over Time for Heroin, Smoking, and Alcohol



Hunt, et al. 1971
The Health Consequences of Smoking: Nicotine Addiction, 1987

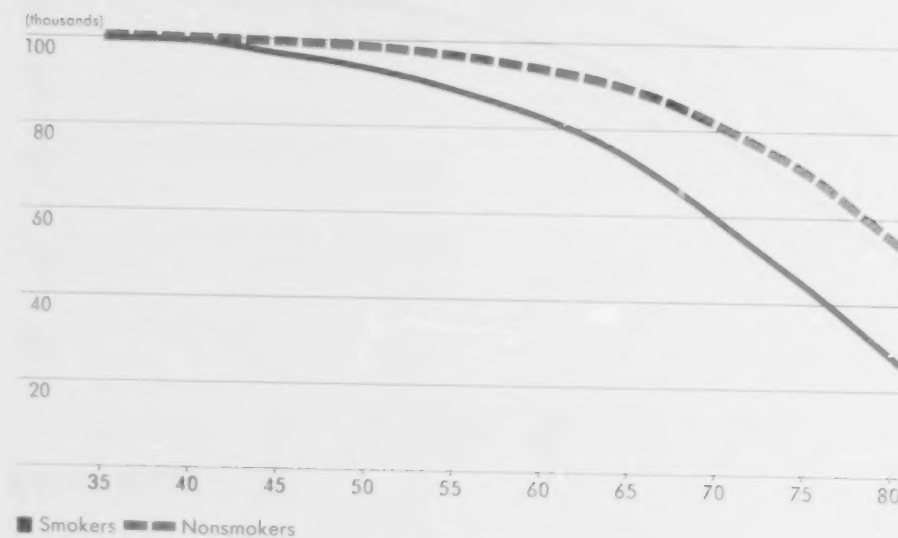
SMOKING AND HEALTH

People who smoke cigarettes run a greater risk of premature death than people who do not smoke. This is true at every age, among men and women alike, but the difference is greatest at younger ages.

The accompanying illustration compares the survival of male smokers and nonsmokers. As can be seen, 10 percent of smokers die before they reach 55, but only four percent of the nonsmokers. By age 65, 28 percent of the smokers are dead, but 11 percent of the nonsmokers. By age 75, 57 percent of the smokers are dead, but 30 percent of the nonsmokers.

Cigarette smoking brings economic loss as well as human suffering. It accounts for \$22 billion in medical costs each year and another \$43 billion in lost production. Medicare and Medicaid alone pay out at least \$4.2 billion annually to care for those who are ill from cigarette-related diseases.

Survival of Male Smokers and Nonsmokers from Age 35



Society of Actuaries

HEART DISEASE, CANCER, STROKE, AND CHRONIC PULMONARY DISEASE

In 1982, the American Cancer Society enrolled more than 1,200,000 persons in a six-year study of the health effects of smoking. Information has been obtained for the first four years of this study which provides new estimates of the relative risks of death encountered by smokers and nonsmokers.

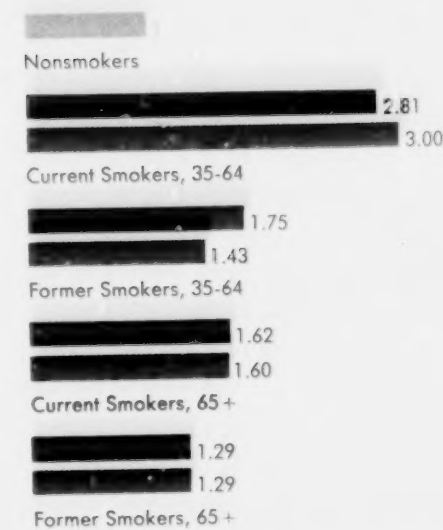
Heart Disease

More people die of heart disease than of any other disease or cause, and one-fifth of these deaths are due to cigarette smoking. Smokers are at nearly twice the risk as nonsmokers; those between the ages of 45 to 64 are at nearly three times the risk.

Smoking, hypertension, and elevated cholesterol are major risk factors for heart disease. Smoking, alone, doubles the risk. When it is combined with either high blood pressure or elevated cholesterol, the risk increases to four times. When all three risk factors are present, the risk is eight times greater.

Women who use oral contraceptives substantially increase their risk of heart disease if they smoke.

Relative Risk of Heart Disease Death, by Age and Sex

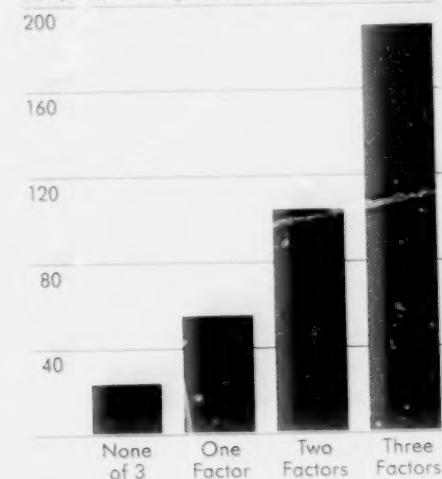


■ Men ■ Women

Reducing the Health Consequences of Smoking, 1989
American Cancer Society preliminary data

Risk Factors for Coronary Heart Disease

(rate per 1,000 men age 30-59 at entry)



Risk factors: Smoking, Elevated Cholesterol,
Hypertension

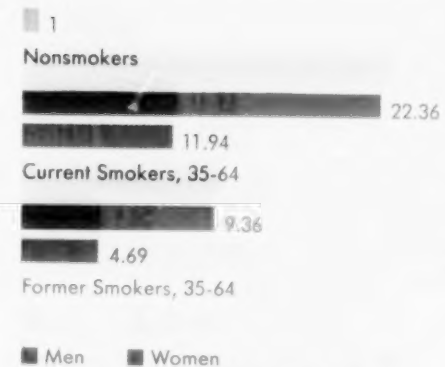
The Health Consequences of Smoking: Cardiovascular
Disease, 1983

Cancer

Cancer is second to heart disease as a cause of death, and cigarette smoking is the most important preventable cause of cancer. Some 30 percent of all cancer deaths—nearly 90 percent of lung cancer deaths—are due to smoking. Among the cancers caused by smoking are cancers of the cervix, larynx, oral cavity, esophagus, bladder, pancreas, and kidney.

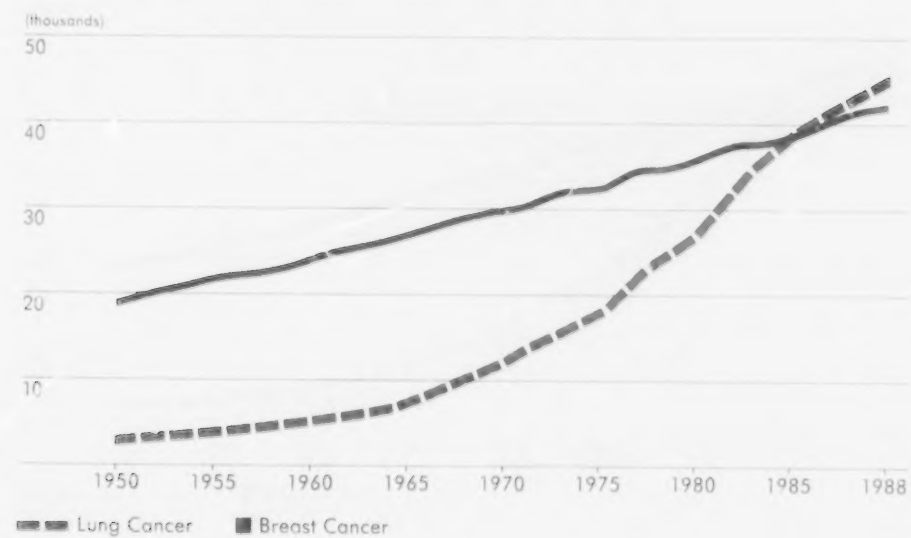
One of the tragedies of the mid-20th century has been the uptake of cigarette smoking by women. Men began smoking cigarettes in large numbers immediately before and during World War I, and their death rates from lung cancer began to rise 20 years later. Women began smoking intensively during World War II, and 20 years later their lung cancer death rates began to rise, too. Now, lung cancer surpasses breast cancer as the chief cause of cancer death among women.

Relative Risk of Lung Cancer Deaths, by Sex



Reducing the Health Consequences of Smoking, 1989
American Cancer Society preliminary data

Women's Deaths, Lung Cancer and Breast Cancer, 1950-1988



American Cancer Society

Stroke

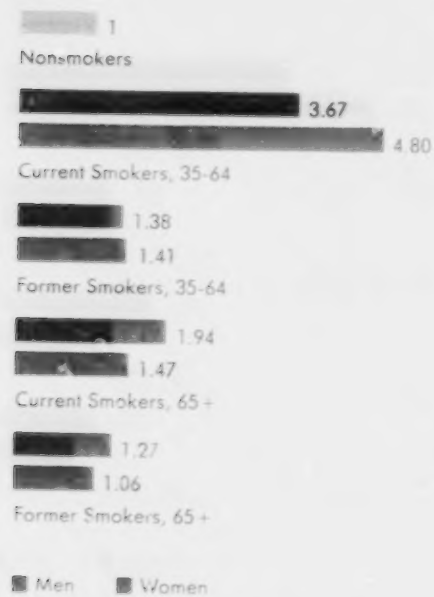
More than 2 million persons in America suffer from the effects of cerebrovascular disease or stroke, and more than 150,000 die from this each year. Nearly 20 percent of these deaths are due to cigarette smoking.

Chronic obstructive pulmonary disease

Chronic obstructive pulmonary disease is a debilitating disease, with death commonly preceded by years of disability and suffering. Eighty percent of deaths from this disease are attributable to smoking.

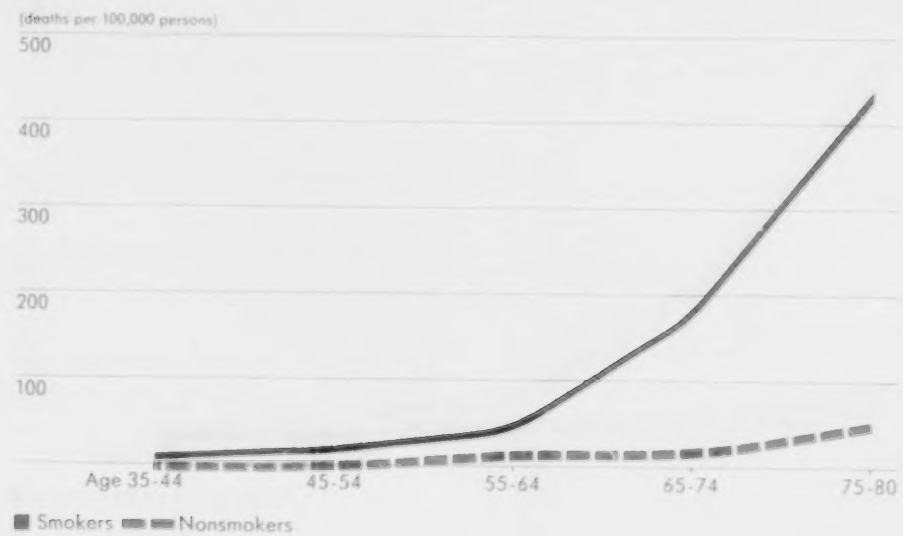
Emphysema is a form of this disease. More than 2 million persons suffer from it, at least a quarter of whom are so seriously handicapped that they are no longer able to work or maintain a household. Emphysema was once mainly a man's disease but it is now a woman's disease as well, as more women have taken up smoking.

Relative Risk of Death from Stroke by Age and Sex



Reducing the Health Consequences of Smoking, 1989
American Cancer Society preliminary data

Chronic Obstructive Pulmonary Disease Deaths: Smokers vs. Nonsmokers



U.S. Veterans Study, unpublished data

SMOKING, BABIES, AND CHILDREN

Exposure to tobacco smoke poses grave risks to babies, before they are born and after.

Spontaneous abortion, pre-term births, low birth-weight full-term babies, and fetal and infant deaths all occur more frequently among mothers who smoke during their pregnancies. About 50 percent of girls and women are cigarette smokers at the time they become pregnant.

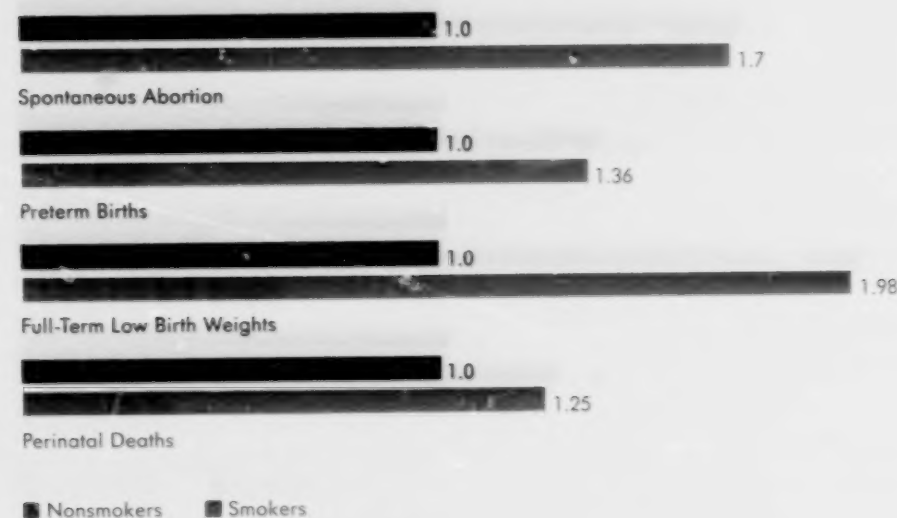
One should not smoke in the presence of babies and small children. Hospital admissions for bronchitis, pneumonia, and related illnesses occur twice as often for children whose parents smoke. The greater the exposure—two parents smoking rather than one—the greater the risks. Sadly, there are smokers living in 40 percent of all American homes where babies are present.

The constituents of cigarette smoke

Cigarettes cause harm because of what is in the tobacco smoke, and because of the smoker's extraordinary exposure to this smoke over days, months, and years.

Smokers expose themselves to cigarettes more constantly and to a greater extent than do users of other

Risks from Smoking During Pregnancy



The Health Consequences of Smoking for Women, 1980

drugs. A two-pack-a-day smoker spends from 3 to 4 hours each day with a cigarette in mouth, hand, or ash tray; takes about 400 puffs, and inhales up to 1,900 milligrams of tar.

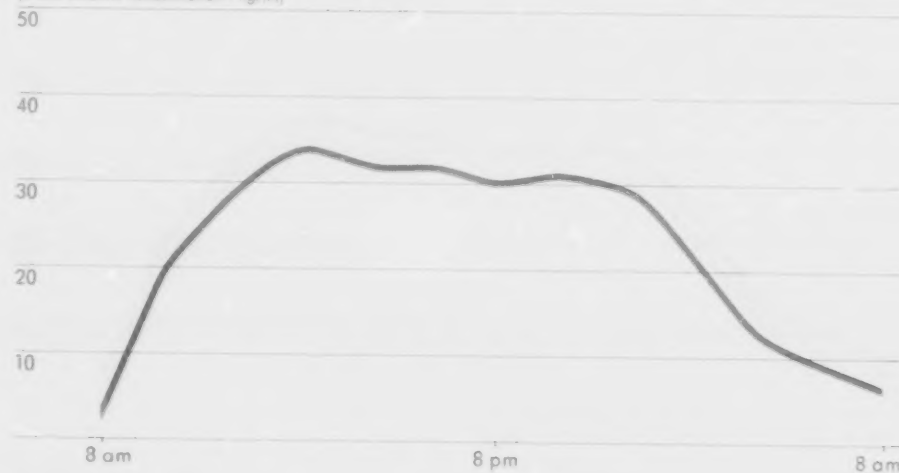
Tar is the oily material which remains after tobacco smoke has been passed through a filter. It consists of more than 4,000 chemical substances. Forty-three of these are known to cause or promote cancer, and 401 others are toxic or harmful in other ways. There is no safe level of exposure for many of them.

Carbon monoxide is one of the gasses in tobacco smoke. When it is inhaled, it combines with hemoglobin in the blood to form carboxyhemoglobin, which interferes with the body's ability to obtain and utilize oxygen. It is this gas which is present in automobile exhaust which kills those who commit suicide by running a car engine in an enclosed garage. It is implicated in many of the diseases associated with cigarette smoking, including heart disease and harmful effects on the development of the fetus. Smokers have levels of carboxyhemoglobin from two to 15 times higher than nonsmokers.

Nicotine is a drug produced by the tobacco plant and in large quantities is extremely poisonous. It is an addictive drug which affects the body in different ways. In stressful situations, it can act as an anti-anxiety agent like a tranquilizing drug, while in

A Smoker's Level of Nicotine over 24 hours

(blood nicotine concentration - ng/ml)



Benowitz, Kurl, Jacob (1982)

The Health Consequences of Smoking: Nicotine Addiction, 1987

serene situations it can act as a stimulant like amphetamines. Smokers tend to develop their own, unique patterns of obtaining nicotine, which they vary only slightly from day-to-day.

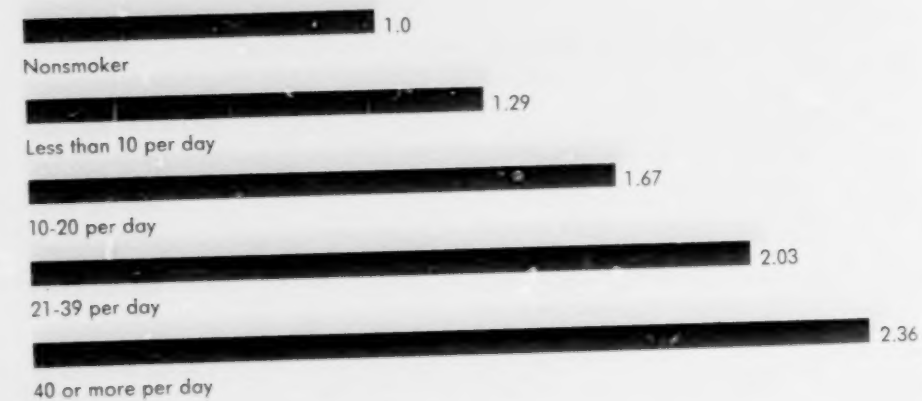
Diseases caused by cigarette smoking are dose-responsive; the more one smokes, the greater the risk. This is true for all diseases associated with smoking, including lung cancer. Those who smoke two or more packs a day are at six times the risk of dying of lung cancer as those who smoke half-a-pack-a-day. The effect continues after one has stopped smoking.

How many cigarettes are smoked each day is only one measure of exposure. Others are how many puffs are taken and how deeply the smoke is inhaled.

Some smokers switch to lower tar and nicotine cigarettes in the hope of reducing their risks of disease. To some extent they may benefit, unless they begin to smoke more or change their smoking behavior in other ways, but the benefit will be miniscule compared to the benefits of quitting entirely. Some reduction in the risk of lung cancer will occur, but there are no data to show that other health risks are reduced.

The Federal Trade Commission requires that tar

Mortality Ratios by Number of Cigarettes Smoked



U.S. Veterans Study

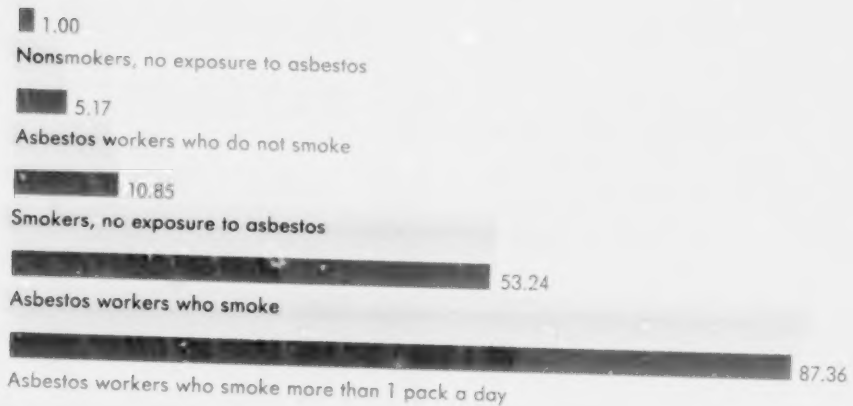
and nicotine levels be displayed in advertising. These are measured by machine, and what a machine measures does not necessarily correspond to what a smoker actually obtains. A cigarette found to be in the 1 to 5 mg. tar range can become a 15 to 20 mg. tar cigarette if the smoker takes more or deeper puffs or even partially blocks the ventilating holes or channels which are found in some cigarette filters.

SMOKING AND THE WORKPLACE

Both cigarette smoking and occupational exposures can cause lung disease. In some cases, as with coal miners' Black Lung disease, the two exposures work independently to increase the risk and severity of the disease. In other cases, they interact to create more disease than would be anticipated simply by adding the separate effects.

One of the first industrial products shown to interact with cigarette smoking was asbestos. Workers exposed to asbestos who do not smoke experience five times the risk of lung cancer as nonsmokers who are not exposed, but those who work with asbestos and are smokers encounter a 50-fold risk. Heavy smokers have an 87-fold risk.

Lung Cancer Mortality Risks, Asbestos Exposure and Smoking



The Health Consequences of Smoking: Cancer and Chronic Lung Disease in the Workplace, 1985

PIPES, CIGARS, AND SMOKELESS TOBACCO

The use of pipes, cigars, and smokeless tobacco has been declining for many years, except for one product, moist snuff. Sales of this product increased during the early 1980s.

Tobacco in any form is addictive and presents health risks. Those who smoke pipes and cigars are at greater risk of cancers of the oral cavity, larynx, pharynx and esophagus and have higher death rates than nonsmokers, although not nearly as high as those of cigarette smokers. Smokeless tobacco is a cause of mouth cancer, other oral diseases, and other adverse health effects.

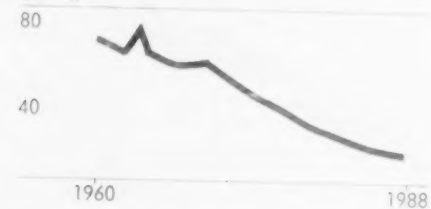
Young people who use smokeless tobacco often move on to cigarette smoking. In 1986, Congress became concerned that the use of smokeless tobacco was increasing among young people. It enacted legislation which bans its advertising on radio and television and requires health warnings on packages and in advertising. The warnings are, "This product may cause mouth cancer", "This product may cause gum disease and tooth loss", and "This product is not a safe alternative to cigarettes".

Per Capita Consumption of Cigars, Pipe Tobacco, Chewing Tobacco and Snuff, Age 18 and Over

Cigars
(number)



Pipe Tobacco
(pounds)



Chewing Tobacco
(pounds)



Snuff
(pounds)



Economic Research Service, USDA

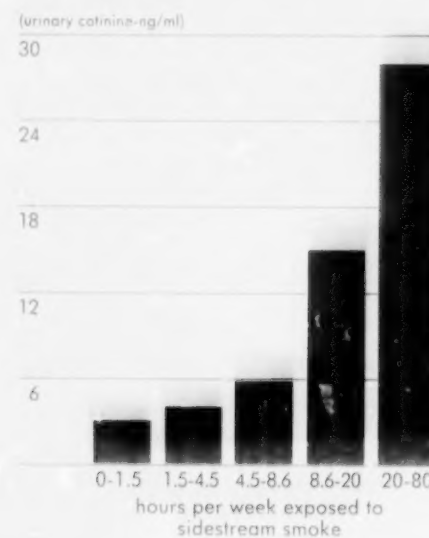
PASSIVE SMOKING

Nonsmokers who live or work in the company of smokers absorb nicotine, carbon monoxide and other constituents of tobacco smoke just as smokers do, although in smaller amounts. How much they absorb depends on the smoke concentration, the quality of the ventilation, and the time spent in the area. Nonsmokers heavily exposed to other people's smoking may "smoke" the equivalent of one or two cigarettes a day.

Tobacco smoke is a health hazard to nonsmokers, a cause of lung cancer, and is harmful to babies and young children. It is annoying and physically irritating to many people, and can worsen the symptoms of asthma, chronic bronchitis, and allergies. Separating smokers from nonsmokers may reduce, but does not eliminate nonsmokers' exposure.

At the present time, 42 States and more than 300 local municipalities restrict smoking in restaurants and other public places, and 13 States have extended this protection to private work places. Many employers have instituted their own regulations. All Federal agencies restrict or ban smoking in public areas and work places, and smoking is banned entirely on airplane flights scheduled for two hours or less.

A Nonsmoker's Absorption of Nicotine



Wald, et al., 1984
The Health Consequences of Involuntary Smoking, 1986

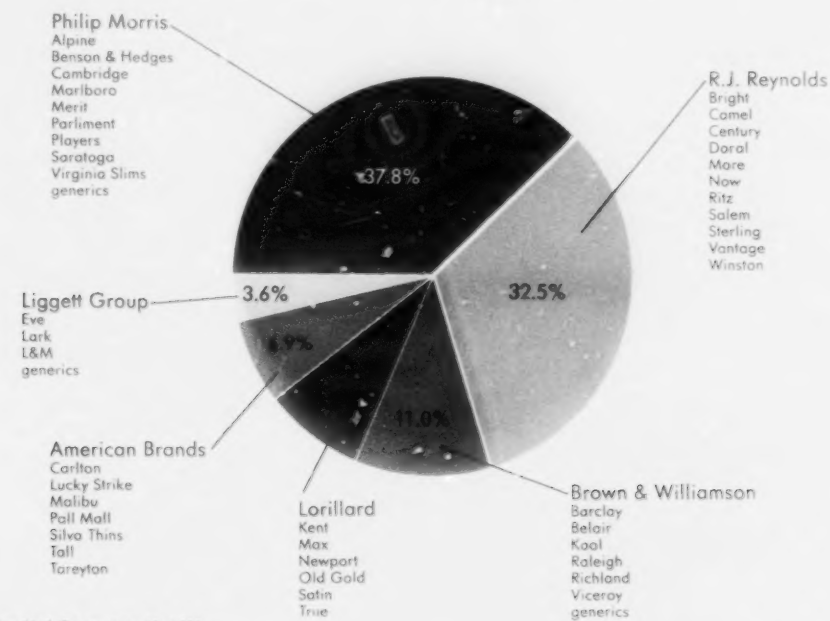
The previous section describes the enormous impact that tobacco use has on public health in the United States. The health effects of tobacco on smokers and those exposed to tobacco smoke are numerous and well documented. However, removing the cause of the problem, in this case tobacco, is not a simple task.

The tobacco industry in the United States is extensive, profitable and deeply rooted in the tradition of American agriculture. The production and marketing of tobacco has driven availability and use of the product. Conversely, these activities over the past 25 years have been influenced by health concerns. To accomplish the public health goal of reducing and ultimately eliminating tobacco use in the United States, an understanding of the complex interrelationships among the economic, social, political, and medical aspects of tobacco use is necessary. This next section describes the economic aspects of the industry today.

CIGARETTE MANUFACTURING AND MARKETING

Few businesses are as closely held and almost no business is as profitable as the cigarette business. For nearly 80 years, six companies have produced virtually all the cigarettes manufactured in America. The companies are Philip Morris, R.J. Reynolds, Brown and Williamson, Lorillard, American Brands, and Liggett Group.

Share of Market Among U.S. Cigarette Companies, 1987



New York Times, June 12, 1988

All six companies have been involved in mergers, acquisitions, and corporate change. R.J. Reynolds in 1984 became RJR Nabisco and in 1988 was purchased by an investment house, in the largest corporate takeover in America's history. Philip Morris has become the owner of General Foods and Kraft Foods, Brown & Williamson's parent company, BAT Industries, has added the insurance giant, Farmers Group, Inc. to its components, and Lorillard has become a part of Loews Corporation. Liggett & Myers, once part of a conglomerate, is now the Liggett Group.

Tens of billions of dollars have been involved in these restructurings, all of which have had their origin in profits from the cigarette business. Cigarettes are the most profitable of company lines overall. Among the five largest companies, they accounted for 27 percent of sales in 1985, but 60 percent of profits.

Cigarettes are an international business. Of the four largest cigarette companies worldwide, three are based in the United States, Philip Morris, RJR Nabisco, and American Tobacco. The fourth company is BAT Industries of Great Britain.

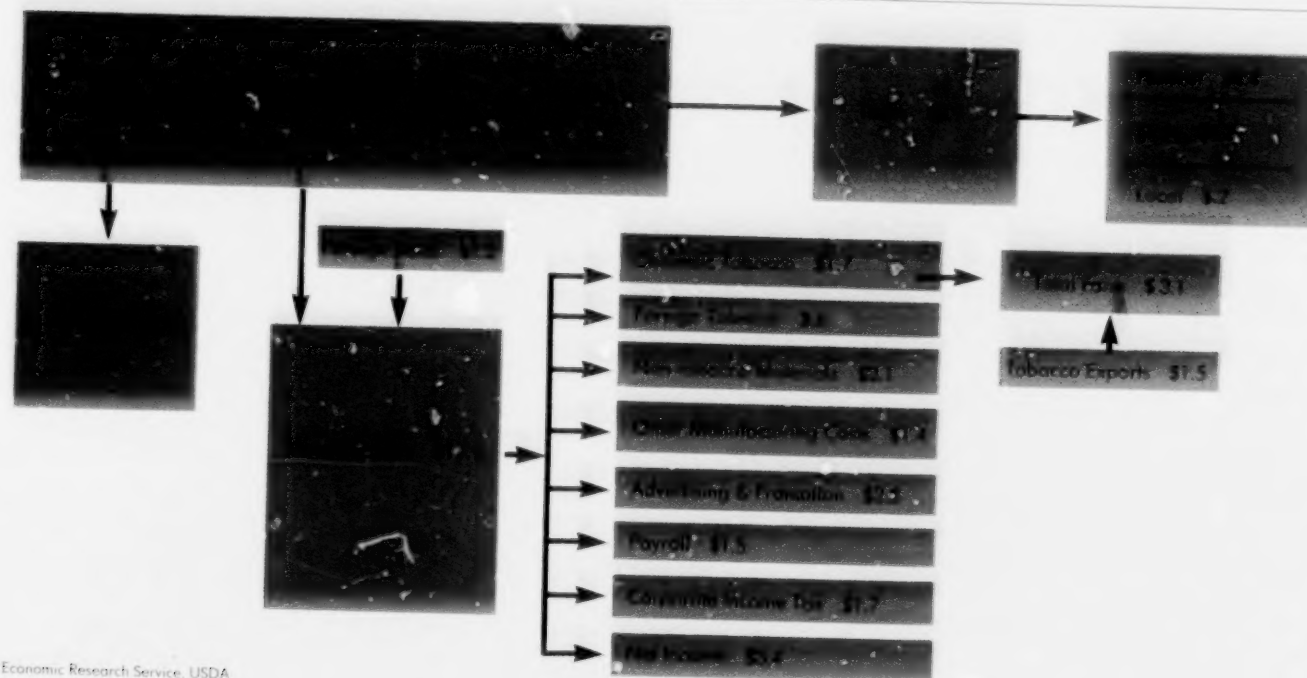
The structure of the United States cigarette business is shown in the accompanying illustration, which describes the 1985 business year. Total domestic sales in that year were \$30.2 billion, to which was added \$1.2 billion in foreign sales. Of this, \$8.9 billion went to Federal, State and local governments in taxes, \$7.6 billion to distributors, and the rest to the six companies. The companies netted a profit after taxes of \$3.4 billion, which was more than their combined payroll of \$1.5 billion and their domestic tobacco purchases of \$1.7 billion.

Cigarette consumption in the United States has been falling, but profits have been rising. In 1982, company profits after taxes were \$1.3 billion, while three years later they were \$3.4 billion. The companies accomplished this by controlling costs and raising prices.

Although cigarette company sales and profits are large, the business itself is relatively small. In 1985, it employed 35,500 persons, 5,000 less than three years earlier.

Manufacturing is almost entirely automated. Machines take the stems and midrib portions of the tobacco leaf, add natural tobacco and additives, and form this into one continuous cigarette with filters if required, which is then cut to the required length and placed in packages.

The Cigarette Business in 1985 (billions of dollars)



Economic Research Service, USDA

CIGARETTE MARKETING

The cigarette has changed over the years. In 1945, five cigarette brands, unfiltered and 70 mm long, accounted for 90 percent of all cigarette sales. In the 1950s, filtered and longer cigarettes became popular. In the 1960s, low-yield cigarettes made their appearance, and in the 1970s, new ultra low-yield cigarettes began to be marketed.

These changes have brought about a radical reduction in tar yields. The average tar yield in 1954 was 36.5 mg., was 21.6 mg. in 1968, and is 13.2 mg. today. This has been accomplished by new tobacco processing methods, new filters of varying design and materials, and changes in the design and construction of the cigarette.

More than 50 brands of cigarettes are offered for sale, packaged in more than 200 varieties and sizes. The choice is wide. One leading brand is offered in eight different versions, in hard pack and soft pack, in lengths of 85 and 100 mm, and with tar yields of 16 mg. and 10 mg. Another brand is offered in six packages, with and without filters, in hard and soft packs, in 70 mm, 80mm, 85mm and 100 mm lengths, and with tar yields of 21 mg., 16 mg., and 9 mg.

Average Tar Contents of U.S. Cigarettes, 1968-1987



Like many other consumer products, cigarettes are produced and promoted to appeal to different audiences. Some brands are "upscale" or "high-end", offered at premium prices, some are aimed at women smokers, and others are "macho" brands. Menthol cigarettes are preferred by many black smokers and are consequently promoted heavily to this market.

For the first time since the depression years of the 1930s, price competition is occurring in the cigarette business. Several strategies are being employed—rebates and coupons, packs of 25 rather than 20 cigarettes offered at the same price, and new, generic brands sold at discounted prices.

At least half of all cigarettes are sold in supermarkets and other food stores, mostly by the carton. In recent years, sales by gasoline stations have increased while sales from vending machines have declined. About half of all cigarettes are sold to retailers through wholesalers and the rest are sold directly to chains and other large outlets.

Tobacco Sales by Outlet, 1982

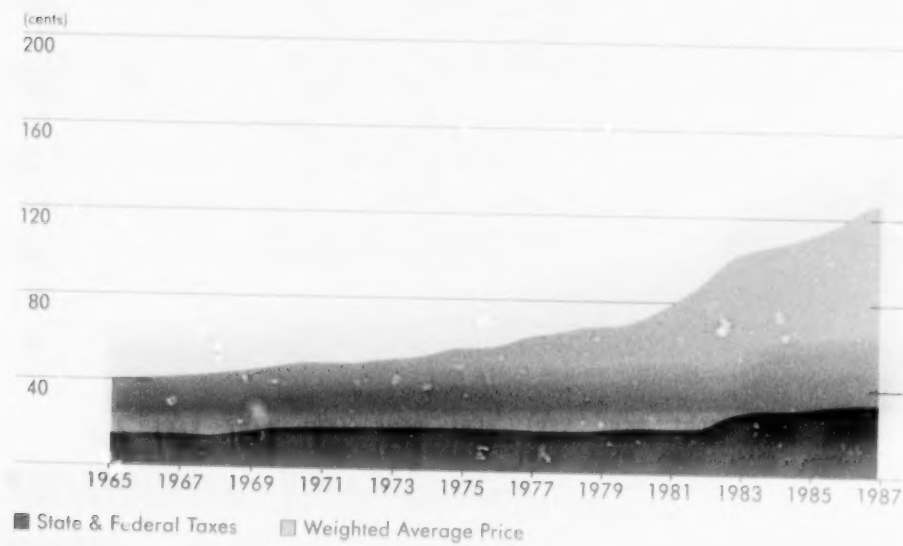
Food Stores	52.5%
Gasoline service stations	12.8
Drug Stores	11.7
Vending machines	6.2
Department stores	4.6
Liquor stores	4.2
Cigar stores	3.0
Eating and drinking places	1.5
Other	3.5

Bureau of Census.

CIGARETTE PRICES AND TAXES

The retail price of cigarettes doubled in the years between 1979 and 1987, from 60 cents to \$1.19. The biggest increase came in the three years between 1981 and 1983, when the Federal excise tax rose by eight cents and the retail price rose overall by 25 cents. (In these years, cigarette consumption dropped from 640 billion to 600 billion.)

Prices of Cigarette Packages, 1965-1987



Tobacco Institute

Cigarettes are taxed by the Federal Government, by all 50 states and the District of Columbia, and by several hundred municipalities. State and local taxes range from 2 cents to 38 cents a package. Federal, State and local taxes now make up less than 30 percent of the retail price of cigarettes, down from 50 percent 25 years ago.

State Cigarette Tax Per Pack, 1987

2c North Carolina	16c Alaska Louisiana Montana	24c Kansas Florida
2.5c Virginia	16.5c Alabama	25c Rhode Island
3c Kentucky	17c New Hampshire District of Columbia Vermont West Virginia	26c Connecticut Iowa Massachusetts Texas
7c South Carolina	18c Idaho Mississippi Ohio Pennsylvania	27c Oregon New Jersey North Dakota Nebraska
8c Wyoming	20c Colorado Nevada Illinois	28c Maine
12c Georgia	21c Arkansas Michigan New York	30c Wisconsin Hawaii
13c Maryland Missouri Tennessee	23c South Dakota Oklahoma Utah	31c Washington
14c Delaware		35c California
15c Arizona New Mexico		38c Minnesota
15.5c Indiana		

Tobacco Institute

CIGARETTE ADVERTISING

The cigarette companies spent nearly \$2.4 billion in 1986 to promote the sale of their products. Almost \$1 billion was for advertising, \$630 million went to retailers in promotional allowances, and the remainder was spent for a myriad of promotional enterprises—premiums, testimonials, public entertainment, direct mail promotions, and street-corner and mail order sampling. The companies sponsor or support many sporting events, such as tennis tournaments, auto races, and basketball games. One company publishes a magazine which it distributes free to 11 million addressees.

The cigarette companies were the largest advertisers on television and radio until 1971, when Congress banned such advertising, and they are now among the leaders in magazine and national newspaper advertising. They are first in outdoor and transit advertising.

In 1984, Congress enacted legislation which requires that cigarette advertisements and packages contain four warnings, which are to be rotated every three months. The warnings are based on medical information contained in the Surgeon General's reports on the health consequences of smoking.

Cigarette Advertising and Promotion, 1986

(millions of dollars)

Advertising		
Newspapers	\$120	
Magazines	340	
Outdoor	301	
Transit	35	
Point of Sale	136	
Total		\$932
Promotional allowances to retailers	630	
Other:		
Sampling	99	
Premiums & others items	210	
Public entertainment	71	
All others	440	
Total		820
Total		2,382

Federal Trade Commission

Cigarette Health Warnings

SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, And May Complicate Pregnancy.

SURGEON GENERAL'S WARNING: Quitting Smoking Now Greatly Reduces Serious Risks to Your Health.

SURGEON GENERAL'S WARNING: Smoking By Pregnant Women May Result in Fetal Injury, Premature Birth, And Low Birth Weight.

SURGEON GENERAL'S WARNING: Cigarette Smoke Contains Carbon Monoxide.

Public Law 98-474, "Comprehensive Smoking Education Act, 1984"

GROWING TOBACCO

Tobacco is sixth among American crops as a source of farm income and fifth as an agricultural export. It is the leading source of farm income in two States, North Carolina and Kentucky, and a major contributor to farm income in five other States.

About 150,000 families planted 600,000 acres in 1987, and harvested 1.2 billion pounds. This is far less than in 1950, when 535,000 families farmed 2 million acres and harvested 2 billion pounds. The price the farmer gets for tobacco is also relatively lower; it was \$1.55 per pound in 1987, but 52 cents in 1950, the equivalent in today's consumer dollars of \$2.40.

Acreage, Production Unit Prices and Crop Value of Leaf Tobacco, 1950-1987

	Acreage (thousands)	Production (million pounds)	Unit Price (dollar per pound)	Total crop value (millions of dollars)
1950	1599	2,030	\$.52	\$1,050
1955	1495	2,193	.53	1,166
1960	1142	1,944	.61	1,184
1965	977	1,855	.65	1,207
1970	898	1,906	.73	1,389
1975	1083	2,182	1.03	2,238
1980	921	1,786	1.52	2,721
1983	789	1,429	1.75	2,496
1984	792	1,728	1.81	3,128
1985	688	1,511	1.65	2,486
1986	582	1,163	1.53	1,774
1987*	602	1,230	1.55	1,904

*Estimated
Economic Research Services, USDA

Cash Receipts and Exports by Agricultural Commodities, 1954 & 1986

(millions of dollars)	1954		1986	
	Cash receipts	Value of exports	Cash receipts	Value of exports
Total crops & livestock	\$29,632	\$3,053	\$135,184	\$27,859
Total livestock & livestock products	16,276	332	71,572	25,013
Total crops	13,556	2,271	63,612	22,846
Grains & feed crops	4,876	750	23,797	9,059
Cotton	2,702	780	2,920	1,419
Oil bearing crops	942	306	10,507	6,293
Fruits & tree nuts	1,220	171	6,900	1,281
Vegetables	1,548	101	8,705	1,174
Tobacco	1,161	303	1,918	1,203
Other crops	1,017	311	8,865*	2,417**

*Calendar year
 **Fiscal year beginning October 1, 1986
 Economic Research Service, USDA

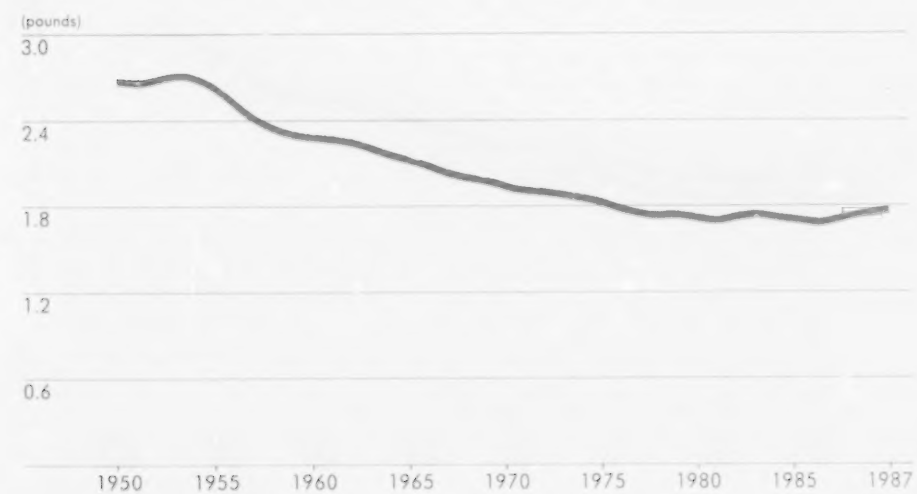
Crop Value of Tobacco in Seven States, 1983-1987*

(dollars in millions)	1983		1984		1985		1986		1987	
N. Carolina	\$1,020	28.1%	\$1,054	21.5%	\$936	23.8%	\$699	18.6%	\$730	19.9%
Kentucky	713	27.0	756	28.0	858	28.8	554	23.1	441	18.2
S. Carolina	203	20.2	188	16.3	167	16.0	112	12.5	149	16.0
Virginia	186	12.9	195	10.7	184	10.9	116	7.1	149	6.7
Tennessee	237	13.2	253	11.9	222	10.9	150	7.7	129	6.3
Georgia	174	5.5	155	4.3	140	4.3	108	3.4	117	3.8
Maryland	57	5.5	31	2.4	40	3.3	37	3.1	28	2.5

*The percentages represent the proportion of total farm receipts from tobacco
Economic Research Service, USDA

Tobacco has been buffeted by declining markets and foreign competition. The cigarette companies have learned to produce cigarettes using less tobacco and are importing more tobacco from abroad, while their total production is turning downward. At the same time the market for cigar, pipe, and smokeless tobacco has fallen.

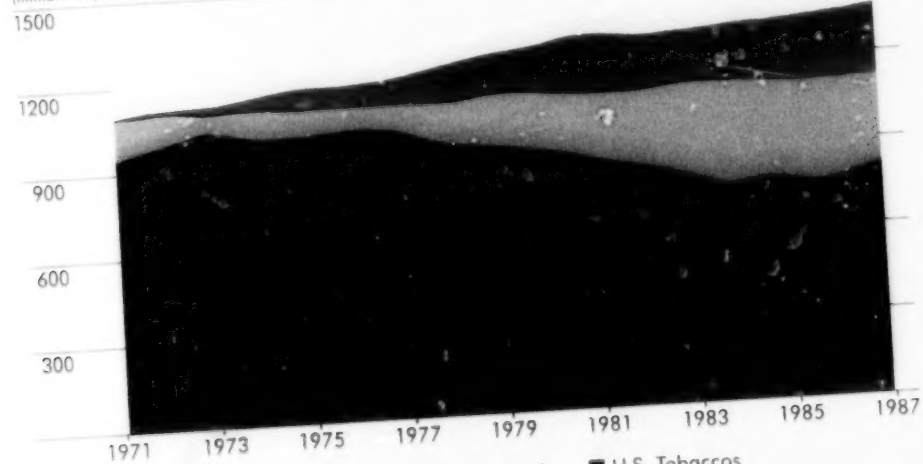
Tobacco Utilized per 1,000 Cigarettes, 1950-1987



Economic Research Services, USDA

Domestic and Foreign Tobacco Utilized in Cigarettes, 1971-1987

(millions of pounds)



Oriental Tobaccos*
 Other Imported Tobaccos*
 U.S. Tobaccos

*Break-out of Oriental and other imports based on mid-year stocks of these types
Economic Research Service, USDA

The American cigarette has always contained Oriental tobacco, but until a few years ago the cigarette companies did not import other tobacco types. Now they do, and up to some 35 percent of the tobaccos in American-manufactured cigarettes come from Brazil, Zimbabwe, and other countries.

Twenty-five years ago, a package of cigarettes cost 30 cents and about four cents or 13 percent, went to the American tobacco farmer. Today, the average cost of a package is \$1.19, but the farmer's return has not changed. It is still about four cents, or three percent.

THE TOBACCO FARM

Many types and kinds of tobacco are grown in the United States. Three are used in cigarettes: burley, flue-cured, and Southern Maryland. In 1984, domestic burley accounted for 33 percent of the tobacco used in cigarettes, domestic flue-cured 35 percent, and Southern Maryland 2 percent, while the remainder was imported. Kentucky produces two-thirds of all burley grown in the United States and North Carolina produces two-thirds of all flue-cured tobacco.

Tobacco farms are small. The farms which grow burley average 86 acres in size, of which 40 acres are cropland and from one to three acres are devoted to tobacco. The farms which grow flue-cured tobacco average 114 acres, of which 14 acres are planted with tobacco. As might be expected, most tobacco farmers supplement their income with other crops and with jobs off the farm.

The tobacco growth cycle in America starts with the sowing of tiny tobacco seeds on a small plot of fertilized land. Transplanting of plants from the seedbed to the field takes place from mid-March through June, beginning in Florida, and ending in the northern States with the shorter growing season. Harvesting begins three months later, and curing immediately after.

Burley, flue-cured and Southern Maryland vary in plant variety, in harvesting methods, and in curing. Burley and Southern Maryland are cured by exposing the tobacco to air for a period of weeks, while flue-cured is cured in a shorter period by exposure to heated air.

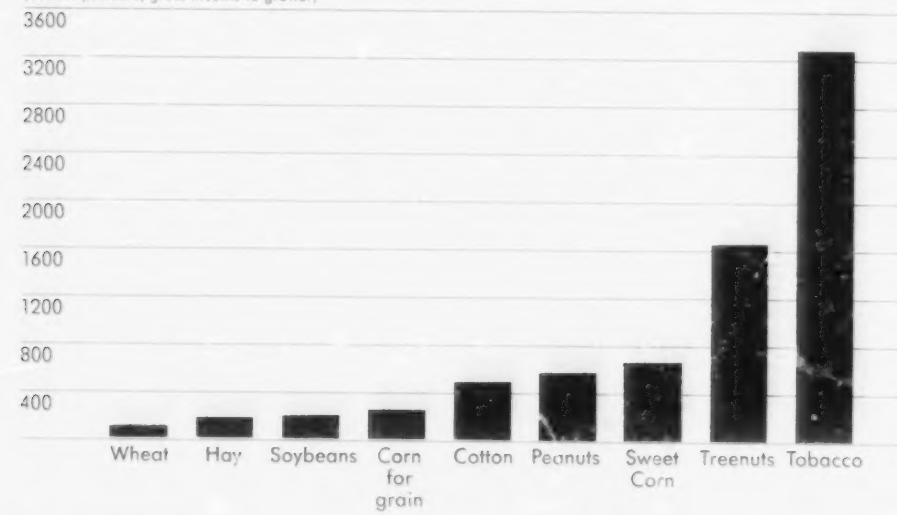
Many changes have taken place in tobacco farming. Total acreage has declined, yields per acre have increased, the farms are larger, and there is more mechanization. The changes are most striking in the case of flue-cured tobacco, where labor hours have dropped from 425 hours per acre to about 150 hours since 1965 as the result of a switch from tied to untied

leaf sales, a changeover to labor-saving bulk barns and mechanical harvesters, and more efficient preharvest operations. In the case of burley, a satisfactory harvester has not yet been developed and the smaller size of the tobacco farms impedes more efficient farming. Even here, however, labor hours have dropped from an average 360 hours per acre to 300 hours.

Tobacco is a high-value crop, with harvests in recent years yielding more than \$3,000 per acre.

Farm Value per Acre for Selected Crops, 1988

(dollars per acre, gross income to grower)



Economic Research Service, USDA

THE FEDERAL TOBACCO PROGRAM

Along with corn, wheat, cotton, peanuts, and rice, tobacco is protected by a Federal price support and supply control program, which has a major effect on tobacco production, prices, and income.

The tobacco program is voluntary, accepted or rejected by vote of farmers in a given region, and is operated through regional tobacco cooperatives. Under the program, farmers limit their production in return for a guaranteed buyer and a guaranteed minimum support price. The price is set by the Secretary of Agriculture under a prescribed formula: if the farmer is unable to sell his crop at the time of harvest at or above the support price, he sells it to the cooperative, which places it in storage until a buyer can be found.

In 1938, local committees assigned tobacco acreage allotments to individual farms and 50 years later the allotments are still in effect. They are worth \$2,000 to \$4,000 per acre for flue-cured and burley tobacco, and can be used by their owners, or rented or leased to others. Congress has taken several steps to limit the ownership of allotments to those who are actually farming the land. Institutions are barred from owning allotments, and those who hold flue-cured quotas must dispose of them if tobacco has not been planted (or considered planted) during at least two of the previous three years.

The Federal support program kept supply and demand in relatively good balance for many years, and gave strong protection to the small, family-owned farm. Most of the tobacco placed on loan was eventually sold, making the program more successful from a financial standpoint than most of the other price-support programs. This period of stability came to an end in the early 1980s, and in the face of strong economic and political pressures Congress has reformed and recast the program.

The most significant change has been to reduce the price support levels and the production allotments. American tobacco had become overpriced in the world market by an estimated 40 to 60 cents a pound, which hampered exports abroad and led American companies to import tobacco from foreign countries. Stocks of unsold tobacco as a consequence rose to record levels, until at the end of the 1985 crop year, Government-guaranteed loans covering these stocks stood at \$3.5 billion in principal and interest.

Tobacco Loan Stocks at Beginning of Marketing Year, Burley and Flue-Cured, 1960-1988

(millions of pounds)	Flue-cured	Burley		Flue-cured	Burley
1960	557.3	98.0	1975	179.9	12.0
1961	506.7	38.6	1976	359.2	44.8
1962	377.0	33.2	1977	556.9	54.9
1963	496.3	94.4	1978	534.0	113.5
1964	696.9	265.4	1979	564.0	155.4
1965	918.5	316.4	1980	554.4	66.3
1966	836.4	261.9	1981	595.8	0
1967	685.4	276.7	1982	518.7	.7
1968	773.4	321.7	1983	688.4	226.1
1969	800.5	340.8	1984	797.5	377.2
1970	744.9	454.8	1985	833.1	548.9
1971	761.9	468.4	1986	790.4	525.7
1972	617.8	327.6	1987	647.8	329.7
1973	402.3	276.7	1988*	466.1	240.0
1974	276.7	139.2			

*Estimated

Economic Research Services, USDA

Under the revised program, price levels have been lowered, poundage allotments have been reduced, and the cigarette companies have been brought into the process of setting quotas. The companies must provide the Secretary of Agriculture with estimates of their tobacco needs a year in advance, under conditions of confidentiality, and are required to buy at least 90 percent of these estimates.

A second change in the support program has been the adoption of a "no-net-cost" provision in answer to public criticism that taxpayers have been subsidizing a harmful product. Under this provision, the tobacco farmer is required to underwrite all but the administrative costs of the program. The provision was to begin with the 1982 crop year, but in 1986 Congress exempted the 1983 burley crop, which was of poor quality.

The changes in the Federal support program have come not without cost, either to the tobacco farmer or the taxpayer. In 1986, the average support price for cigarette tobacco was reduced from \$1.72 per pound to \$1.46 and the farmers' production quotas reduced by six percent. The taxpayer on his part has contributed well over half-a-billion dollars to liquidate unsold tobacco stocks. The Government has sold this tobacco to manufacturers and exporters, some of it at 10 cents on the dollar and some at 90 cents on the dollar.

An issue of national policy is whether it is appropriate for the taxpayer's money to be involved in any manner in the growing of tobacco. Many persons and health agencies have taken the position that this runs counter to the public good, in seeming to support a product clearly identified as a threat to health. Others disagree, saying that no public health issue is involved, that providing support to farmers does not encourage people to smoke.

The Cigarette Trade Worldwide

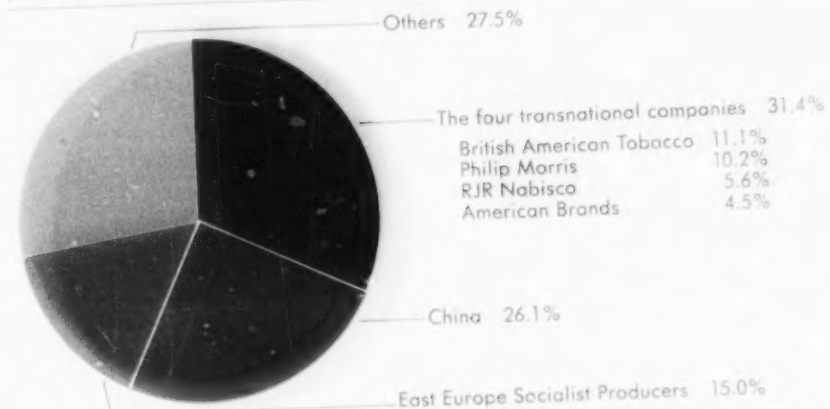
Cigarettes are promoted, sold, and smoked everywhere in the world. The United States participates in this worldwide trade in two ways. Nearly ten percent of all cigarette tobacco is grown in the United States, and three of the four transnational companies which control much of the world trade are American companies.

The transnationals carry on their business by manufacturing cigarettes in foreign factories, by owning all or part of local tobacco companies, by licensing their brand names, and by exporting their manufactured brands. In 1986, the four largest transnationals—three American and one British—produced 1.6 trillion cigarettes, approximately one-third of the world's total production.

A falling dollar and aggressive negotiations on the part of the United States Government with Japan and other Far Eastern countries have almost doubled the overseas market for American cigarettes in the past three years. Some 15 percent of all cigarettes manufactured in the United States are now shipped overseas.

Estimated Shares of World Cigarette Output by Major Manufacturing Groups, 1986

(total output, 5,000 billion cigarettes)



Foreign Agricultural Service, USDA

The negotiations were carried on under Section 301 of the revised U.S. Trade Act, whose purpose is to give American companies the same access to foreign markets for their products as foreign companies enjoy for their exports to the United States. Until these negotiations, tariffs and quotas had virtually barred American and other foreign companies from exporting cigarettes to these countries.

The opening of Eastern markets has brought advertising and promotion to countries where previously such advertising was limited or did not exist. Health officials are concerned with advertising directed to women and adolescents, the absence of warning labels, and the introduction of cigarette advertising on television.

Exports of U.S. Cigarettes to Leading Destinations

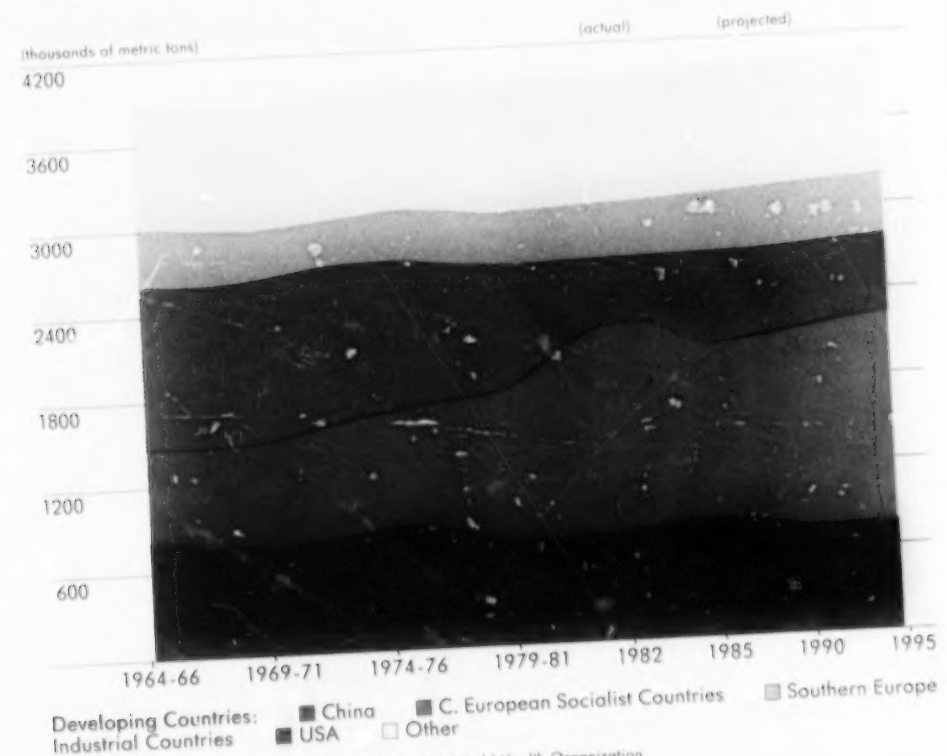
(billions of cigarettes)	1983	1984	1985	1986	1987	1987-88*
Japan	5.5	6.5	6.5	9.9	32.0	34.2
Belgium-Luxembourg	13.0	11.2	12.2	15.5	23.0	25.2
Hong Kong	7.4	7.5	8.4	9.2	11.9	14.9
Saudi Arabia	6.2	6.1	6.6	5.8	5.7	5.6
Taiwan	na	na	0.2	0.2	5.1	5.5
Singapore	na	na	3.1	2.8	3.2	3.5
United Arab Emirates	1.5	0.8	2.2	3.1	2.2	2.5
Kuwait	1.5	1.5	1.5	1.5	1.5	1.9
Netherlands Antilles	1.4	1.1	1.2	1.2	1.7	1.6
Others	22.5	20.9	16.1	14.4	13.9	17.5
Total	60.7	56.5	59.0	64.3	100.2	112.1

* July 1987-June 1988

Economic Research Service, USDA

In the late 1950s, the United States grew approximately one-half of all tobacco grown in the world outside of China, whereas today it accounts for less than ten percent. The World Health Organization estimates that by the year 1995, America's share will be even smaller.

World Tobacco Growing, 1964-66 to 1995



WHO Programme on Tobacco or Health, March 3, 1986, World Health Organization

**Per Capita Consumption of Cigarettes
by Selected Countries, 1985**

(15 years of age and over)	Consumption
Cyprus	4,050
Cuba	3,920
Greece	3,640
Poland	3,300
U.S.	3,270
Japan	3,270
Hungary	3,260
Canada	3,180
Iceland	3,100
Yugoslavia	3,000
Czechoslovakia	2,550
United Kingdom	2,120
Venezuela	1,890
Netherlands	1,690
Nicaragua	1,380
Paraguay	1,000
Jamaica	820
Kenya	550
Malawi	390
Cape Verde	210
Papua New Guinea	30

World Health Organization

Cigarette consumption is declining in the developed countries and increasing in other parts of the world. The World Health Organization credits this to "intensive and ruthless promotional campaigns on the part of the transnationals." The percentage of people who smoke in some developing countries is higher than in the United States, but people do not smoke as heavily.

China is now both the largest producer and the largest consumer of tobacco in the world. In 1984 it enacted legislation banning cigarette advertising, warning its people that "smoking is harmful to human bodies." China is one of a growing number of nations which have banned cigarette advertising, including most recently Canada and Nigeria.

The World Health Organization has said that the Third World's limited available land and limited resources should be devoted to food and other crops, and that the widespread advertising and promotion of cigarette smoking should be forbidden. In 1978 it stated, "failing immediate action, smoking diseases will appear in developing countries before communicable diseases and malnutrition have been controlled, and the gap between rich and poor countries will thus be further expanded."

U.S. Department of Health and Human Services

Public Health Service

Centers for Disease Control

Center for Chronic Disease Prevention and Health Promotion

Office on Smoking and Health

DHHS Publication No. (CDC)87-8397 (Revised 10/89)